Acta Scientific MEDICAL SCIENCES (ISSN: 2582-0931)

Volume 4 Issue 10 October 2020

Case Report

A Rare Case Report of Asymptomatic Filariasis in a Patient of Malaria

Gunvanti Rathod* and Jignasha Bhalodia

Department of Pathology, GMERS Medical College, Sola, Ahmedabad, Gujarat, India

***Corresponding Author:** Gunvanti Rathod, Department of Pathology, GMERS Medical College, Sola, Ahmedabad, Gujarat, India.

Received: August 17, 2020

Published: October 14, 2020

Abstract

Malaria and filaria are the two major mosquito borne public health diseases in India.Malaria is the major parasitic disease of human being with transmission in 107 countries containing three billion people each year in the world. Human lymphatic filariasis is a vector-borne disease mainly caused by the parasitic nematode *Wuchereria bancrofti.* In the present case report patient had coinfection of *Plasmodium vivax* and *Wuchereria bancrofti* who had shown symptoms of malaria. The purpose of this case report is to be aware about this rare coinfection so that while routine screening of haematological smears one should keep in mind about such entity. We had reported this in peripheral blood smear of patient during random screening of smear for malaria.

Keywords: Malaria; Filaria; *Plasmodium vivax*; *Wuchereria bancrofti*; Coinfection

Introduction

Malaria is the major parasitic disease of human being with transmission in 107 countries containing three billion people each year. In malaria infection, the parasite resides inside the red blood cells of human host and causing lysis of red blood cell [1]. Human lymphatic filariasis is a vector-borne disease mainly caused by the parasitic nematode *Wuchereria bancrofti* and transmitted worldwide within the tropical and subtropical regions of Africa, Asia and central and south America. Both malaria and filaria are the two major mosquito borne public health diseases in India also. Both parasite affect the same human hosts and share common mosquito vectors [2]. The patient of filariasis can remain asymptomatic for a long time. When the parasite burden will increase only after that patient will have symptoms. Occurrence of coinfection of malaria and filarial is very rare and only few studies have been reported earlier [3-6]. In the present case report patient had coinfection of *Plasmodium vivax* and *Wuchereria bancrofti* who had shown symptoms of malaria. The purpose of this case report is to be aware about this rare coinfection so that while routine screening of haematological smears one should keep in mind about such entity. We had reported this in peripheral blood smear of patient during random screening of smear for malaria.

Case Report

A 48 years old male presented with high grade fever, severe headache with body ache and weakness to the out patient department of GMERSMC and hospital, Sola, Ahmedabad. On abdominal examination, there was no palpable liver and spleen. All the haematological, serological and biochemical investigations were sent. His renal function test and liver function test were normal. His haematological finding showed low haemoglobin level 10.2 g/dl and erythrocyte count of 3.52 million per dl. His platelet count was 1.50 lac/cmm. The mean corpuscular volume (MVC) was 83 fl, the mean corpuscular haemoglobin concentration 28 g/dl and total leukocyte count was 6400 cell/cmm. Differential leukocyte count was polymorphs 58%, lymphocytes 20%, monocytes 2% eosinophils 20% and basophils-nil. Serological diagnosis revealed insignificant titre for Widal test, non reactive for HIV, HBsAg and HCV. In microscopic examination, thick and thin smear were observed. The peripheral blood smears RBCs were normocytic hypochromic

with presence of schizonts of *P. vivax* (Figure 1). During a random revision of thick and thin smears microfilaria was also observed along with *P. vivax*, which morphologically presented as the microfilariae of *W. bancrofti*, as they lacked terminal nuclei (Figure 2). Filarial parasite was also visible in the wet preparation of the blood (Figure 3). Total WBC count was within normal limit but eosinophil count was raised. Platelet count was within normal limit. Report was sent as concomitant infection of *Plasmodium vivax* and *Wuchereria bancrofti*. Patient was treated with chloroquine, primaquine for malaria and DEC for microfilaria.

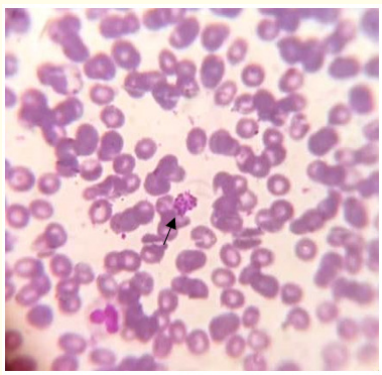

Figure 1: Showed schizonts of *Plasmodium vivax* Malaria [Leishman stain, 100 X].

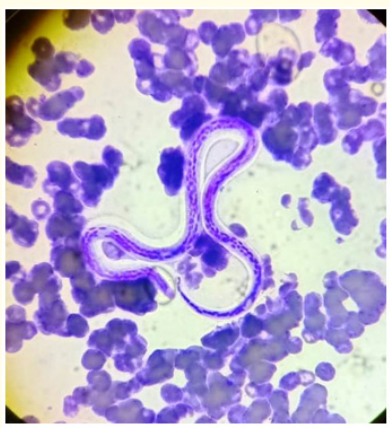

Figure 2: Showed microfilaria of *Wuchereria bancrofti* [Leishman stain, 40X].

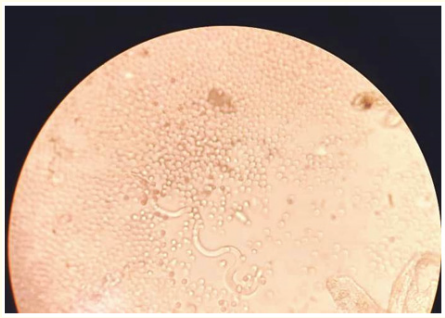

Figure 3: Showed filarial parasite in wet preparation.

Discussion

Malaria and filarial are the two most important mosquito borne disease in India. Malaria is usually presented with high grade fever with chills and rigors. Asymptomatic cases of filariasis are very common in our community as the disease takes months to years to evolve [7,8]. In the present case, patient had both parasites *P. vivax* and *W. bancrofti* had no clinical symptoms of filarial. Absence of the symptoms is the main reason for accidently finding of filarial parasite while routine screening of peripheral blood smear. We can correlate this with study by JA Alli., *et al*. where the patient didn't have any symptoms of filaria [9].

The laboratory diagnosis of filariasis is not easy even in the patients with suggestive symptoms, as the diagnosis essentially relies on the microscopic detection of MF [microfilaria] in the blood. In fact, MF have a different periodicity depending of the geographical region from where the parasite originates implying the need for blood collection when MF appears in the bloodstream (usually at night between 9 pm to 2 am) to render the parasite detectable by the standard thin/thick films microscopy methods [10,11]. Peripheral blood smear prepared from buffy coat is more sensitive [12]. We had also prepared buffy coat from the patient's blood and that showed filarial parasite in the wet preparation too. Serological tests that are considered a better alternative than microscopic methods have been developed in two approaches: (i) immunoenzymatic technique detecting anti-filarial antibodies (IgG4) that are usually high in patients with active filarial infection [13,14]; (ii) immunochromatographic tests detecting circulating filarial antigen [15]. These tests have been adapted to rapid diagnostic tests and

are regarded as the gold standard due to their simplicity of usage, high sensitivity, and specificity, independency of blood collection time, and their rapidity. Molecular methods such as PCR have become available for the detection of *W. bancrofti* DNA from blood samples [16] but still remain hardly used in clinical settings. Ultrasound methods are also quite useful as a non-invasive approach.

Conclusion

We can conclude that symptoms of filariasis do not rapidly appear therefore one should not overlook the peripheral blood smears in patients from endemic areas. It is also important to remind clinical laboratory staff to not only focus on the main test requested for a sample but also consider the possibility of coinfection whenever possible. So, all the blood smears for malaria should be screened for filarial too.

Bibliography

1. Rathod GB and Parmar P. "Study of association of thrombocytopenia with *Plasmodium vivax* infection". *The Indian Journal of Medical Sciences* 69 (2017): 33-35.

2. Arwa Z Al-Riyami and Murtadha Al-Khabori. "Concomitant microfilaria and malaria infection". *Blood* 121.22 (2013).

3. VK Satyawali., *et al.* "Triple Co-infection of Malaria, Filaria, and Dengue: A Rare Entity". *Journal of Laboratory Physicians* 6.2 (2014): 136-137.

4. Wiwanitkit V. "Concurrent malaria and dengue infection: A brief summary and comment". *Asian Pacific Journal of Tropical Biomedicine* 1 (2011): 326-327.

5. Dolo H., *et al.* "Filariasis attenuates anemia and proinflammatory responses associated with clinical malaria: A matched prospective study in children and young adults". *PLOS Neglected Tropical Diseases* 6 (2012): 1890.

6. B Ravindran., *et al.* "Lymphatic filariasis and malaria: concomitant parasitism in Orissa, India". *Transactions of the Royal Society of Tropical Medicine and Hygiene* 92.1 (1998): 21-23.

7. World Health Organization, "Lymphatic filariasis: the disease and its control," Fifth Report of The WHO Expert Committee on Filariasis, Geneva, Switzerland (1992).

8. S Babu and TB Nutman. "Immunopathogenesis of lymphatic filarial disease". *Seminars in Immunopathology* 34.6 (2012): 847-861.

9. JK Baird and RC Neafie. "South American Brugian filariasis: report of a human infection acquired in Peru". *American Journal of Tropical Medicine and Hygiene* 39.2 (1988): 185-188.

10. World Health Organization. Manual of Basic Techniques for a Health Laboratory, Geneva, Switzerland, 2nd edition (2003).

11. World Health Organization. "Lymphatic filariasis," Fourth report of the WHO Expert Committee on Filariasis, Geneva, Switzerland (1984).

12. World Health Organization, Manual of Basic Techniques for a Health Laboratory, Geneva, Switzerland, 2nd edition (2003).

13. GE Kwan-Lim., *et al.* "Filarial specific IgG4 responses correlates with active *Wuchereria* infection". *Journal of Immunology* 145 (1990): 4298-4305.

14. A Kurniawan., *et al.* "Differential expression of IgE and IgG4 specific antibody responses in asymptomatic and chronic human filariasis". *Journal of Immunology* 150.9 (1993): 3941-3950.

15. GJ Weil., *et al.* "The ICT filariasis test: A rapid-format antigen test for diagnosis of bancroftian filariasis". *Parasitology Today* 13.10 (1997): 401-404.

16. JS McCarthy., *et al.* "Evaluation of a polymerase chain reaction-based assay for diagnosis of *Wuchereria bancrofti* infection". *Journal of Infectious Diseases* 173.6 (1996): 1510-1514.